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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,302	08/31/2001	Ira Kukin	APO-8	8713

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EXAMINER	
CHORBAJI, MONZER R	

ART UNIT	PAPER NUMBER
1744	

DATE MAILED: 12/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/943,302	KUKIN ET AL.	
	Examiner	Art Unit	
	MONZER R CHORBAJI	1744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 August 2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 August 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This general office action is in response to the application filing date received on 08/3

Claim Objections

1. Claims 1-3 are objected to because of the following informalities: Claims 1-3 do not include transitional phrases; i.e., comprising or consisting. Please see MPEP 1.75 e (2). Appropriate correction is required. Claims 1-3 are interpreted in the broadest possible interpretation; i.e., comprising.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 3, line 6; applicant uses the phrase “to produce with”. The meaning of this feature is not clear since the specification does not provide an explanation. Does the applicant mean upon introducing the aqueous alkaline substance into the flue gas, the pH is at least 5 because of the pH of the alkaline? In examining claims 1-3, this phrase is considered equivalent to introducing aqueous alkaline substance into the flue gases with at least a pH value of 5. The same applies to claims 2-3

The term "readily" in claims 1-3 is a relative term, which renders the claim indefinite. The term "readily" is not defined by the claim, the specification does

not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

In claim 1, line 4; applicant uses the term "readily". Does the applicant intend to mean by "readily" that the alkaline substance is completely water-soluble not partial? The magnesium hydroxide and calcium hydroxide alkaline as a part of admission of the stat of the art are known to be partially soluble in water. Thus, all of magnesium hydroxide, calcium hydroxide, sodium hydroxide and sodium carbonate are considered readily water-soluble alkaline compounds. Amendment to the claims is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that

the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinoda (GB 2,157,191) in view of Jaeger (U.S.P.N. 3,599,398).

With respect to claims 1-3, the ('191) reference teaches a method of reducing corrosion (page 3, lines 25-26) by applying a water-soluble alkaline substance to flue gases (page 2, lines 32-38) that passes through a heat transfer means (6) on their way to a desulfurizer (7). The aqueous alkaline substance is introduced to the flue gases at the hot side (page 3, lines 28-30 and the unlabeled arrow leading into 6) of the heat transfer means. In addition, the ('191) reference indicates that the flue gases having a temperature above the boiling point of water (page 1, lines 7-8). The flue gases pass through the hot side of a heat transfer means (6) to the desulfurizer and then pass through the cold side (unlabeled arrow leaving 6) of the heat transfer means. The ('191) fails to disclose a minimum pH value of 5 that is produced with the flue gasses; however, the ('398) reference, which is in the art of treating flue gases, teaches introducing aqueous sodium hydroxide with a pH of at least 5.7 into flue gasses (col.6, lines 35-41). Thus, it would have been obvious to one having ordinary skill

in the art at the time the invention was made to modify the method of the ('191) reference by insuring that the pH value of aqueous sodium hydroxide introduced into the flue gases is at least 5.7 as taught by the ('398) reference since such a pH value results in a considerable reduction in the content of sulfur dioxide (col.6, lines 39-41) in the flue gas.

With respect to claim 4, the ('191) reference teaches using sodium hydroxide solution (page 3, lines 15-16).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinoda (GB 2,157,191) in view of Jaeger (U.S.P.N. 3,599,398) and further in view of Teller (U.S.P.N. 4,049,399).

With respect to claim 5, both the ('191) reference and the ('398) reference fail to teach using further additives besides aqueous sodium hydroxide. The ('399) reference, which is in the art of treating flue gases, teaches adding potassium to the alkaline scrubbing liquid (co.12, lines 22-27). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the ('191) reference to include adding potassium to the aqueous alkaline as disclosed in the ('399) reference since such an addition is a matter of choice of design within the scope of the artisan.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinoda (GB 2,157,191) in view of Jaeger (U.S.P.N. 3,599,398) and further in view of Teller (U.S.P.N. 4,049,399) and Wagner (CH 000622618).

With respect to claim 6, the ('191) reference and the ('398) reference fail to teach monitoring the pH of the gas and the pH of the liquid alkaline and

modifying the rate of addition of the alkaline substance in order to maintain the desired pH value. The ('399) reference recognizes the importance of maintaining the pH of the alkaline solution within a certain value (col.8, lines 21-23) such that a pH alkaline monitoring means is an intrinsic device for achieving such a goal. The ('399) reference further teaches using control means (col.8, lines 59-60). In addition, the rate of the added alkaline substance will intrinsically vary in order to maintain the desired pH range value (col.8, lines 51-54), however, the ('399) reference fails to teach monitoring the pH of the gas to be treated. The (618) reference, which is in the art of treating gases, teaches monitoring the pH of the flue gases (abstract). Therefore, it would have been obvious to one having ordinary skill in the art to modify the method of the ('191) reference to include pH gas monitoring means as taught by the ('618) reference in order to determine the dosage for neutralizing pollutants in the gas main stream (abstract, lines 15-19).

10. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kukin et al (U.S.P.N. 6,694,899) in view of Teller (U.S.P.N. 4,049,399).

With respect to claims 1-3, the ('899) reference teaches a method of reducing corrosion (abstract, lines 1-4) by applying a water-soluble alkaline substance to flue gases (col.3, lines 32-36) that passes through a heat transfer means (16) on their way to a desulfurizer (20). The specification on page 3, line 8, teaches that a scrubber is equivalent to a desulfurizer. The aqueous alkaline substance is introduced (26) to the flue gases at the hot side (16 A) of the heat transfer means. In addition, the ('899) reference teaches that the flue gases having a temperature above the boiling point of water (col.2, lines 42-43). The

flue gases pass through the hot side of a heat transfer means (16 A) to the desulfurizer (20) and then pass through the cold side (16 B) of the heat transfer means. The ('899) fails to disclose a minimum pH value of 5 that is produced with the flue gasses; however, the ('399) reference, which is in the art of treating flue gases, teaches introducing aqueous sodium hydroxide (col.8, lines 57-58) with a pH of 9.3 into flue gasses (col.6, lines 35-41). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the ('899) by substituting sodium hydroxide for lime (calcium hydroxide) as taught by the ('399) reference since such a substitution is a matter of choice of design within the scope of the artisan.

With respect to claims 4-5, the ('399) reference teaches using sodium hydroxide solution (col.7, line 42) and adding potassium to the alkaline scrubbing liquid (co.12, lines 22-27).

11. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kukin et al (U.S.P.N. 6,694,899) in view of Teller (U.S.P.N. 4,049,399) and further in view of Wagner (CH 000622618).

With respect to claim 6, the ('899) reference fails to teach monitoring the pH of the gas and the pH of the liquid alkaline and modifying the rate of addition of the alkaline substance in order to maintain the desired pH value. The ('399) reference recognizes the importance of maintaining the pH of the alkaline solution within a certain value (col.8, lines 21-23) such that a pH alkaline monitoring means is an intrinsic device for achieving such a goal. The ('399) reference further teaches using control means (col.8, lines 59-60). In addition,

the rate of the added alkaline substance will intrinsically vary in order to maintain the desired pH range value (col.8, lines 51-54), however, the ('399) reference fails to teach monitoring the pH of the gas to be treated. The (618) reference, which is in the art of treating gases, teaches monitoring the pH of the flue gases (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the ('899) reference to include pH gas monitoring means as taught by the ('618) reference in order to determine the dosage for neutralizing pollutants in the gas main stream (abstract, lines 15-19).

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Stegemann et al (U.S.P.N. 5,246,594) reference, the Scholes et al (U.S.P.N. 3,919,391) and the Makuch (U.S.P.N. 3,693,557) reference all teach similar concepts in treating flue gases as the instant claims do.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 6:30-3:00.

14. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROBERT J WARDEN can be reached on (571) 272-1281. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

15. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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